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TO:	FROM:
Examiner R.M. Fetsuga	Paul D. Amrozowicz, Reg. No. 45,264
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RE:	RECIPIENTS REFERENCE NUMBER:
Response	10/668,819

URGENT

FOR REVIEW

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SEP 20 2005

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re application of: Russell D. WILFERT

Group Art Unit: 3751

Serial No.: 10/668,819

Examiner: R.M. Fetsuga

Filed: September 22, 2003

Confirmation No.: 1949

For: VALVE ASSEMBLY HAVING A PRESSURE BALANCED SEGMENT SEAL

Docket No.: H0005158-3114

Customer No. : 000128

RESPONSE TO NOTIFICATION OF NON-COMPLIANT APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Notification of Non-Compliant Appeal Brief ("Notification") mailed August 30, 2005, Appellant hereby submits a complete new Appeal Brief in compliance with 37 C.F.R. § 41.37. The new brief submitted herewith corrects the deficiencies noted in the Appeal Brief that was filed on July 26, 2005. Specifically, the instant Appeal Brief now includes only a status of the amendment filed after the final rejection, consistently indicates that only Claims 1, 2, 4-12, 14-17, 19, and 20 were rejected under 35 U.S.C. § 112, first paragraph, and cites only art that forms the basis of the rejections.

In view of the foregoing, it is submitted that the Appeal Brief submitted herewith in response to the above-noted Notification is fully compliant and should therefore be accepted.

Dated

9/20/05

Ingrassia, Fisher & Lorenz
Customer No. 29,906

Respectfully submitted,


Paul D. Amrozowicz
Registration No. 45,264

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SEP 20 2005

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

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APPEAL BRIEF PURSUANT TO 37 C.F.R. § 41.37

20

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

25

Sir:

This is an Appeal Brief under 37 C.F.R. § 41.37 appealing the final rejection of the
Examiner dated April 8, 2005. Each of the topics required by 37 C.F.R. § 41.37 is presented in
this Brief and is labeled appropriately.

30

I. Real Party in Interest

Honeywell International, Inc. ("Honeywell") is the real party in interest of the present application. An assignment of all rights in the present application to Honeywell was executed by the inventor and recorded by the U.S. Patent and Trademark Office at Reel 014548, Frame
5 0261.

II. Related Appeals and Interferences

There are no appeals or interferences related to the present application of which
10 Appellant is aware.

III. Status of Claims

Claims 1-20, which are presented in the Claims Appendix, stand finally rejected.
15 Accordingly, Appellant hereby appeals the final rejection of Claims 1-20.

IV. Status of Amendments

In response to a final Office action dated April 8, 2005, Appellant filed a response on
20 April 28, 2005, requesting reconsideration of the claim rejections, making minor amendments to Claims 2, 3, 8, 12, 13, 16, and 18-20, and amending the specification and drawings to address the respective objections. In response to this request, an Advisory Action was issued on May 12, 2005, which indicated that the amendment after final had overcome the objections to the drawings and specification, and would be entered for purposes of appeal.

25 In view of the above, the claims presented in the Claims Appendix are consistent with the claims presented in the after final amendment, and no drawing objections or specification objections remain in issue.

V. Summary of Claimed Subject Matter

The present invention relates to a valve assembly (100) that, in one embodiment, includes a valve body (102), a plug (104), and a segment seal assembly (106). The valve body (102) has at least a fluid inlet (108) and a fluid outlet (110), and at least one of the valve body fluid inlet (108) and fluid outlet (110) define a cross sectional flow area (210) (paragraph [0016], page 5, ll. 3-8; FIGS. 1, 2, 8). The plug (104) is disposed within the valve body (102), and has at least an outer surface and a flow passage (202) extending therethrough (paragraph [0016], page 5, ll. 8-10; FIGS. 1-3). The plug (104) is selectively moveable between an open position, in which the flow passage (202) is in fluid communication with the valve body fluid inlet (108) and fluid outlet (110), and a closed position, in which the flow passage (202) is not in fluid communication with the valve body fluid inlet (108) and fluid outlet (110) (paragraph [0017], page 5, ll. 11-18). The segment seal assembly (106) is coupled to the plug (104) (paragraph [0020], page 6, ll. 9-15) and includes a main body (402), a seal gland (404), and a seal (406) (paragraph [0021], page 6, ll. 17-19). The main body has a first side (408), a second side (410), and an opening (412) extending therebetween (paragraph [0021], page 6, ll. 19-20). The segment seal first side (408) is disposed proximate the plug outer surface (FIGS. 2, 4, 8). The seal gland (404) is formed in the main body first side (408) and surrounds the main body opening (412) (paragraph [0022], page 7, ll. 1-2; FIGS. 2, 4, 8). The seal (406) is disposed within the seal gland (404) and is in contact with the plug outer surface, whereby a sealed vent region (418) is formed between the main body first side and the plug outer surface (paragraphs [0022], [0023], page 7, ll. 3-28; FIGS. 2, 3, 8). The sealed vent region (418) has a cross sectional area that is less than the defined cross sectional flow area (210) (paragraph [0022], page 7, ll. 71-12; FIGS. 2, 8).

In another embodiment, a valve for mounting within a valve body (102) having at least an inlet (108), and an outlet (110), and wherein at least one of the valve body inlet (108) and outlet (110) define a cross sectional flow area (210), includes a plug (104) and a segment seal (106). The plug (104) is adapted to be mounted within the valve body (102), and has at least an outer surface and a flow passage (202) extending therethrough (paragraph [0016] page 5, ll. 3-8; FIGS. 1, 2, 8). When mounted in the valve body (102), the plug (104) is selectively moveable between an open position, in which the flow passage (202) in fluid communication with the valve body inlet (108) and outlet (110), and a closed position, in which the flow passage (202) will not be in

fluid communication with the valve body inlet (108) and outlet (110) (paragraph [0017], page 5, ll. 11-18). The segment seal (106) is coupled to the plug (104) (paragraph [0021], page 6, ll. 17-19) and includes a main body (402), a seal gland (404), and a seal (406) paragraph [0021], page 6, ll. 17-19). The main body has a first side (408), a second side (410), and an opening (412) extending therebetween (paragraph [0021], page 6, ll. 19-20). The segment seal first side (408) is disposed proximate the plug outer surface (FIGS. 2, 4, 8). The seal gland (404) is formed in the main body first side (408) and surrounds the main body opening (412) (paragraph [0022], page 7, ll. 1-2; FIGS. 2, 4, 8). The seal (406) is disposed within the seal gland (404) and is in contact with the plug outer surface, whereby a sealed vent region (418) is formed between the main body first side and the plug outer surface (paragraphs [0022], [0023], page 7, ll. 3-28; FIGS. 2, 3, 8). The sealed vent region (418) has a cross sectional area that is less than the defined cross sectional flow area (210) (paragraph [0022], page 7, ll. 71-12; FIGS. 2, 8).

In yet another embodiment, a valve assembly (100) includes a valve body (102), a plug (104), one or more bearing assemblies (112, 114), an actuator assembly (118) and a segment seal assembly (106). The valve body (102) has at least a fluid inlet (108) and a fluid outlet (110), and at least one of the valve body fluid inlet (108) and fluid outlet (110) define a cross sectional flow area (210) (paragraph [0016] page 5, ll. 3-8; FIGS. 1, 2, 8). The plug (104) is disposed within the valve body (102), and has at least an outer surface and a flow passage (202) extending therethrough (paragraph [0016], page 5, ll.8-10; FIGS. 1-3). The plug (104) is selectively moveable between an open position, in which the flow passage (202) is in fluid communication with the valve body fluid inlet (108) and fluid outlet (110), and a closed position, in which the flow passage (202) is not in fluid communication with the valve body fluid inlet (108) and fluid outlet (110) (paragraph [0017], page 5, ll. 11-18).. The one or more bearing assemblies (112, 114) are mounted within the valve body (102) and are coupled to the plug (104), to thereby rotationally mount the plug (104) therein (paragraph [0018], page 5, ll. 23-27; FIGS. 1, 3). The actuator assembly (118) is mounted on the valve body (102) and is coupled to the plug (104) (paragraph [0019], page 6, ll. 1-3; FIGS. 1, 3, 7). The actuator assembly (110) is adapted to receive one or more control signals and is operable, in response thereto, to move the plug (104) between the open and closed positions (paragraph [0019], page 6, ll. 4-7). The segment seal assembly (106) is coupled to the plug (104) (paragraph [0021], page 6, ll. 17-19) and includes a

main body (402), a seal gland (404), and a seal (406) paragraph [0021], page 6, ll. 17-19). The main body has a first side (408), a second side (410), and an opening (412) extending therebetween (paragraph [0021], page 6, ll. 19-20). The segment seal first side (408) is disposed proximate the plug outer surface (FIGS. 2, 4, 8). The seal gland (404) is formed in the main
5 body first side (408) and surrounds the main body opening (412) (paragraph [0022], page 7, ll. 1-2; FIGS. 2, 4, 8). The seal (406) is disposed within the seal gland (404) and is in contact with the plug outer surface, whereby a sealed vent region (418) is formed between the main body first side and the plug outer surface (paragraphs [0022], [0023], page 7, ll. 3-28; FIGS. 2, 3, 8). The sealed vent region (418) has a cross sectional area that is less than the defined cross sectional
10 flow area (210) (paragraph [0022], page 7, ll. 71-12; FIGS. 2, 8).

VI. Grounds of Rejection to be Reviewed on Appeal

The grounds of rejection to be reviewed in this appeal are as follows:

15

1. Claims 1, 2, 4-12, 14-17, 19, and 20 stand rejected under 35 U.S.C. § 112, first paragraph as allegedly being directed to subject matter that is either not sufficiently described or not sufficiently enabled.

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2. Claims 1-3 and 5-16 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over U.S. Patent No. 2,506,097 (Melichar).

25

3. Claims 4 and 17-20 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Melichar and U.S. Patent No. 3,479,006 (Brown).

VII. Arguments

30

I. CLAIMS 1, 2, 4-12, 14-17, 19, and 20 ARE NOT UNPATENTABLE UNDER 35 U.S.C. § 112, FIRST PARAGRAPH

In the final Office action, Claims 1, 2, 4-12, 14-17, 19, and 20 were rejected under 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter that was not adequately described in and/or enabled by the specification.

5 A. Rejection Details

In the final Office action, the Examiner specifically alleges that the feature “wherein the sealed vent region has a cross sectional area that is less than the defined cross sectional flow area,” which is recited in each of independent Claims 1, 11, and 17, “is neither taught by the instant disclosure nor evident to the examiner.” See Final Office action at 4. The Examiner
10 additionally alleges that if the defined cross sectional flow area (e.g., the cross sectional flow area of the valve body fluid inlet or fluid outlet) is larger than the cross sectional area (208) of the vent region (418), this would preclude any net force acting on the segment seal assembly (106) toward the outlet (110). Id. The Examiner further alleges that this arrangement would not reduce the differential pressure across the segment seal assembly (106), but would instead cause
15 the differential pressure to increase. Id. at 5.

The rejection, as written, appears as though the Examiner intends to make an enablement rejection, but includes language that also implies an allegation of a lack of written description. Thus, for completeness, Appellant addresses herein both the written description and enablement requirements.

20

B. Analysis

It is well-settled that the written description and enablement requirements of 35 U.S.C. 112, first paragraph are separate and distinct requirements. Univ. of Rochester v. G.D. Searle & Co., 358 F.3d 916, 920-23, 69 USPQ2d 1886, 1890-93 (Fed. Cir. 2004); In re Curtis, 354 F.3d 1347, 1357, 69 USPQ2d 1274, 1282 (Fed. Cir. 2004). The written description requirement is met if an applicant conveys with reasonable clarity to those skilled in the art that, as of the filing date of the application, he or she invented, and was in possession of, the claimed subject matter. Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991); In re Gosteli, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989). A description as filed is presumed to be adequate, unless or until the Examiner presents sufficient evidence or reasoning to rebut the presumption. See, e.g., In re Marzocchi, 439 F.2d 220, 224, 169 USPQ 367, 370 (CCPA 1971). As such, the Examiner must have a reasonable basis to challenge the adequacy of the written description.

With respect to enablement, the standard for determining whether a specification meets this requirement was established by the Supreme Court almost 90 years ago, in which the Court held that the enablement requirement is met if a person skilled in the art can, based on the disclosure, make and use the invention without undue experimentation. Mineral Separation v. Hyde, 242 U.S. 261, 270 (1916). This standard, albeit rather old, is still the one to be applied today. In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). In applying this standard, it is noted that it is not necessary to "enable one of ordinary skill in the art to make and use a perfected, commercially viable embodiment absent a claim limitation to that effect." CFMT, Inc. v. Yieldup Int'l Corp., 349 F.3d 1333, 1338, 68 USPQ2d 1940, 1944 (Fed. Cir. 2003). In order to make an enablement rejection, the Examiner has the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention. In re Wright, 999 F.2d 1557, 1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993).

1. Written Description

Appellant submits that the specific subject matter of Claims 1, 11, and 17 that the final Office action alludes to is adequately described in the specification. One need only look to paragraph [0022], lines 7-12, and FIG. 2, to see that this specific feature is disclosed and

adequately described. Appellant submits that the disclosure readily and easily conveys that the inventor, as of the filing date of the application, both invented and possessed the subject matter of at least independent Claims 1, 11, and 17.

5 2. Enablement

In addition to the above, the Examiner takes issue with the discussion in paragraph [0022], lines 12-16, and paragraph [0026], lines 1-3, of the specification and, in doing so, appears to be making an enablement rejection under 35 U.S.C. § 112, first paragraph. More specifically, the Examiner states that if the cross sectional flow area (210) of the valve body outlet (110) were significantly larger than the cross sectional area (208) of the vent region (418), then there would not be any reduction in differential pressure load across the segment seal, and it would instead be increased. Final Office action at 5.

It is unclear what relevance specific magnitudes of the ratio of valve body outlet cross sectional flow area to vent region cross sectional area that fall within the bounds of the claims have on the patentability of the claims. It appears from the final Office action that the Examiner's position is that if a particular embodiment has a cross sectional area ratio magnitude that falls within the claims, but does not provide a particular benefit that the preferred embodiment does, then the claimed invention as a whole is not enabled. This is not the law, nor has any precedent been cited to support this position. Indeed, whether the Examiner agrees that a vent region having a cross sectional area that is "significantly" less than the cross sectional flow area of the outlet provides the described resultant net force has no bearing whatsoever on whether the claimed structure can be made and used. Clearly, as was noted above, the Examiner's (or any one else's) belief that certain embodiments of the claimed invention are not as beneficial as the described preferred embodiment is superfluous, and has nothing whatsoever to do with enablement of the claimed subject matter. See CFMT, Inc., supra.

Moreover, as was repeatedly pointed out in Appellant's previous responses, because the vent region (418) is in fluid communication with the valve outlet (110), the pressure between the two regions will be equal. However, the pressures acting on the surface areas of these two regions are not the only forces being applied to the segment seal assembly main body (402) to provide the resultant net force. First, as is generally known for plug valves, some fluid will leak

around the plug (104) and into the recess (204) between the segment seal main body and the plug outer surface. However, the seal (406) keeps this fluid from entering the vent region (418). The pressure from this fluid supplies a force that acts to push the segment seal main body (402) toward the outlet (110). Second, the seal (406) also supplies a force that acts to push the segment seal main body (402) toward the outlet (110). The forces due to fluid pressure on both sides of the segment seal assembly main body, together with the force supplied from the seal, supply the resultant net force.

In response to the above, the Examiner states that he is unaware of how one skilled in the art would use an intentionally leaking valve, and can find no prior art that teaches how to use such a valve. Final Office action at 5. The Examiner further alleges that it is impossible for fluid leakage past the plug to push the segment seal main body toward the outlet since the segment seal would be "necessarily spaced from the outlet." *Id.* Finally, the Examiner additionally alleges that there is no support for the seal supplying a force to the segment seal main body. *Id.* at 6. Appellant will address these three additional allegations in turn.

As to the first allegation, Appellant does not concede that the claimed valve is intentionally leaky. Although some leakage around the plug (104) may occur, this fluid leakage, as noted above, assists in inhibiting leakage past the segment seal main body. Nonetheless, even if some embodiments of the claimed valve were made that did leak, that does not preclude its use, regardless of how undesirable or untenable such a use might be in the opinion of the Examiner. Again, the legal basis of enablement is not that the ordinarily skilled artisan be able to "make and use a perfected, commercially viable embodiment." *CFMT, Inc.*, supra at 1338, 68 USPQ2d 1940, 1944 (Fed. Cir. 2003), just that this person can make and use the invention as claimed.

With respect to the second allegation, this statement clearly presupposes the result that the Examiner alleges; namely, that the segment seal would "necessarily be spaced from the outlet." Yet, the Examiner has provided no support for this allegation beyond mere conjecture, and this statement leads to rebuttal of the third allegation regarding the lack of support for the force supplied from the seal. Specifically, the disclosure explicitly states in paragraph [0023] that "the depth of the seal gland 404 is dimensioned so that when the seal 406 is disposed within the seal gland 404, the seal 406 will be sufficiently compressed over a wide range of fluid

pressures. In particular, the seal gland depth is dimensioned such that the seal 406 will be sufficiently compressed, to thereby adequately seal the vent region 418, even when fluid pressure is low. This will ensure that leakage around the seal 406 and into the vent region 418 will not occur at low fluid pressures. This also allows, at least in some embodiments, the segment seal assembly 106 to be configured and installed without the spring element 416.”

Thus, it is clear that the fluid leakage around the plug (104) and into the recess (204) between the segment seal main body and the plug outer surface, together with the force supplied from the seal (406), will prevent the segment seal from “necessarily” being spaced apart from the outlet.” Moreover, the disclosure provides clear support that, at least in some embodiments, the seal by itself provides sufficient force to alleviate the need for the spring.

As was noted above, claimed subject matter is enabled if any person skilled in the art can, based on the disclosure, make and use the invention without undue experimentation. It is abundantly clear that a person of less than ordinary skill in the art, let alone an ordinarily skilled artisan, can pick up the instant application and make and use the claimed invention. Whether it operates with the imperfections that the Examiner alleges (which Appellant does not concede), or whether it operates with the precision and quality that the Examiner believes it should, is of no concern in determining its patentability. Nonetheless, Appellant has further shown that the Examiner’s allegations are without merit.

In view of the foregoing, Appellant submits that Claims 1, 2, 4-12, 14-17, 19, and 20 meet the requirements of 35 U.S.C. § 112, first paragraph, and the rejections thereof should be reversed.

II. CLAIMS 1-3 AND 5-16 ARE NOT UNPATENTABLE UNDER 35 U.S.C. § 103 OVER MELICHAR.

In the final Office Action dated April 8, 2005, Claims 1-3 and 5-16 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Melichar. As will be explained in more detail herein below, this rejection is not tenable at least because elements recited in independent Claims 1 and 11 are not found in either of the cited references.

A. Melichar

Melichar relates to a fuel system valve that includes a cup-shaped member (28) disposed within a recess (27) that is formed in the valve rotor. The valve (24) has an opening (25) therethrough into a vent region having a cross section area that is, at a minimum, equal to the cross sectional flow area of the valve body fluid ports.

B. Analysis

The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. In re Fine, 837 F.2d 1071, 1074 (Fed. Cir. 1988). Indeed, the Examiner has the burden of setting forth a detailed evidentiary basis for the teaching, suggestion or motivation to combine the cited references. As the Court of Appeals for the Federal Circuit has repeatedly stated, the factual inquiry of whether to combine references must be thorough and searching, and must be based upon the objective evidence of record. In re Sang Su Lee, 277 F.3d 1338, 1343 (Fed. Cir. 2002). Moreover, a claim cannot be found *prima facie* obvious unless all the elements of the claim are taught or suggested in the cited art. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974); In re Wilson, 424 F.2d 1382, 1385 (C.C.P.A. 1970) ("All words in a claim must be considered in judging the patentability of that claim against the prior art."). Just because a prior art reference *can* be modified does not render the proposed modification obvious unless the prior art suggests the desirability of making the proposed modification. In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Appellants submit that the Examiner has not met his burden, since the references do not teach or suggest all of the claim elements.

Independent Claims 1 and 11 each recite that the sealed vent region has a cross sectional area that is less than the defined cross sectional flow area of either the valve body fluid inlet or outlet. Melichar, on the other hand, discloses a vent region cross sectional area that is no less than equal to the cross sectional flow area of the valve body fluid ports. Nowhere does Melichar disclose or even remotely suggest providing a vent region that is less than the defined cross sectional flow area, as recited in independent Claims 1 and 11. In the final Office action the Examiner alleges that it would have been obvious to reduce the vent region "in order to enable use of a stronger spring." While this alleged motivation is interesting, it clearly has no basis

whatsoever in the prior art nor is it any type of "motivation" for making the proposed modification. As noted above, just because a prior art reference can be modified, such capability does not render a proposed modification obvious unless the prior art suggests the desirability of making the proposed modification. Here, the prior art makes no suggestion that it would be desirable to use a stronger spring.

In view of the foregoing, Appellant submits that independent Claims 1 and 11 are not obvious in view of Melichar. Moreover, because independent Claims 1 and 11 are nonobvious, then dependent Claims 2, 3, 5-10, and 12-16 are also nonobvious. In re Fine, supra.

III. CLAIMS 4 AND 17-20 ARE NOT UNPATENTABLE UNDER 35 U.S.C. § 103 OVER MELICHAR IN VIEW OF BROWN.

The final Office action of April 8, 2005, also rejected Claims 4 and 17-20 under 35 U.S.C. § 103 as being unpatentable over Melichar and in view of Brown. As will be explained in more detail herein below, this rejection is not tenable for at least the same reason delineated above.

A. Melichar

Melichar was described above, and will therefore not be described further.

B. Brown

Brown relates to a valve and was recited merely for its teaching of an actuator that responds to control signals, and teaches nothing regarding segment seals.

C. Analysis

As is clear from the previous description, Melichar fails to disclose at least one feature of independent Claims 1 and 17. Moreover, Appellant submits that Brown fails to disclose at least the deficient features of independent Claims 1 and 17, and thereby fails to make up for the previously noted deficiencies of the Melichar.

Because all of the elements in independent Claims 1 and 17 are not taught or suggested in the cited art, a *prima facie* case of obviousness has not been established. As such, dependent Claims 4 and 18-20 are also nonobvious.

5

IV. CONCLUSION OF ARGUMENTS

In view of the foregoing, Appellant submits that the final rejection of Claims 1-20 is improper and should not be sustained. Therefore, a reversal of the rejections in the final Office Action dated April 8, 2005 is respectfully requested.

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15

Dated

9/20/05

Respectfully submitted,

Paul D. Amrozowicz
Registration No. 45,264

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Ingrassia, Fisher & Lorenz
Customer No. 29,906

VIII. CLAIMS APPENDIX

Claims on Appeal

1. A valve assembly, comprising:

5 a valve body having at least a fluid inlet and a fluid outlet, at least one of the valve body fluid inlet and fluid outlet defining a cross sectional flow area;

a plug disposed within the valve body, the plug having at least an outer surface and a flow passage extending therethrough, the plug selectively moveable between (i) an open position, in which the flow passage is in fluid communication with the valve body fluid inlet and fluid outlet, and (ii) a closed position, in which the flow passage is not in fluid communication with the valve body fluid inlet and fluid outlet; and

a segment seal assembly coupled to the plug, the segment seal assembly including:

a main body having a first side, a second side, and an opening extending therebetween, the segment seal first side disposed proximate the plug outer surface,

15 a seal gland formed in the main body first side and surrounding the main body opening,

a seal disposed within the seal gland and in contact with the plug outer surface, whereby a sealed vent region is formed between the main body first side and the plug outer surface,

20 wherein the sealed vent region has a cross sectional area that is less than the defined cross sectional flow area.

2. The valve assembly of Claim 1, further comprising:

a backup ring disposed at least partially within the seal gland along with the seal.

3. The valve assembly of Claim 8, further comprising:

a spring disposed within at least a portion of the sealed vent region, the spring configured to bias the segment seal main body away from the plug outer surface.

4. The valve assembly of Claim 1, further comprising:
an actuator assembly mounted on the valve body and coupled to the plug, the actuator adapted to receive one or more control signals and operable, in response thereto, to move the plug between the open and closed positions.

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5. The valve assembly of Claim 1, further comprising:
one or more bearing assemblies mounted within the valve body and coupled to the plug, to thereby rotationally mount the plug therein.

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6. The valve assembly of Claim 1, further comprising:
a plurality of engagement sections extending substantially perpendicularly away from the plug outer surface, each engagement section engaging a portion of the segment seal main body.

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7. The valve assembly of Claim 6, wherein:
the engagement sections form a recess; and
at least a portion of the segment seal main body is disposed within the recess.

20

8. The valve assembly of Claim 1, wherein the segment seal main body is biased away from the plug outer surface.

9. The valve assembly of Claim 1, wherein the segment seal main body opening is in fluid communication with the valve body inlet when the plug is in the closed position.

10. The valve assembly of Claim 1, wherein the segment seal main body opening is
25 in fluid communication with the valve body outlet when the plug is in the closed position.

11. A valve for mounting within a valve body having at least an inlet, and an outlet, and wherein at least one of the valve body inlet and outlet define a cross sectional flow area, the valve comprising:

a plug adapted to be mounted within the valve body, the valve plug having at least an outer surface and a flow passage extending therethrough, when mounted in the valve body, the plug is selectively moveable between (i) an open position, in which the flow passage in fluid communication with the valve body inlet and outlet, and (ii) a closed position, in which the flow passage will not be in fluid communication with the valve body inlet and outlet; and

a segment seal coupled to the plug, the segment seal including:

a main body having a first side, a second side, and an opening extending therebetween, the segment seal first side disposed proximate the plug outer surface,

a seal gland formed in the segment seal first side and surrounding the segment seal opening, and

a seal disposed within the seal gland and in contact with the plug outer surface, whereby a sealed vent region is formed between the segment seal first side and the plug outer surface,

wherein the sealed vent region has a cross sectional area that is less than the defined cross sectional flow area.

12. The valve of Claim 11, further comprising:

a backup ring disposed at least partially within the seal gland along with the seal.

13. The valve of Claim 16, further comprising:

a spring disposed within at least a portion of the sealed vent region, the spring configured to bias the segment seal main body away from the plug outer surface.

14. The valve of Claim 11, further comprising:

a plurality of engagement sections extending substantially perpendicularly away from the plug outer surface, each engagement section engaging a portion of the segment seal main body.

15. The valve of Claim 14, wherein:
the engagement sections form a recess; and
at least a portion of the segment seal main body is disposed within the recess.

5 16. The valve of Claim 11, wherein the segment seal main body is biased away from the plug outer surface.

17. A valve assembly, comprising:
a valve body having an inlet, and an outlet, at least one of the valve body inlet and outlet
10 defining a cross sectional flow area;
a plug disposed within the valve body, the plug having at least an outer surface and a
flow passage extending therethrough, the plug selectively moveable between (i) an open
position, in which the flow passage is in fluid communication with the valve body inlet and
outlet, and (ii) a closed position, in which the flow passage is not in fluid communication with
15 the valve body inlet and outlet;
one or more bearing assemblies mounted within the valve body and coupled to the plug,
to thereby rotationally mount the plug therein;
an actuator assembly mounted on the valve body and coupled to the plug, the actuator adapted to
receive one or more control signals and operable, in response thereto, to move the plug between
20 the open and closed positions; and
a segment seal assembly coupled to the plug, the segment seal assembly including:
a main body having a first side, a second side, and an opening extending
therebetween, the segment seal first side disposed proximate the plug outer surface,
a seal gland formed in the main body first side and surrounding the main body
25 opening,
a seal disposed within the seal gland and in contact with the plug outer surface,
whereby a sealed vent region is formed between the main body first side and the plug
outer surface,
wherein the sealed vent region has a cross sectional area that is less than the defined cross
30 sectional flow area.

18. The valve assembly of Claim 17, further comprising:
a spring disposed within at least a portion of the sealed vent region, the spring configured to bias the segment seal main body away from the plug outer surface.

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19. The valve assembly of Claim 17, further comprising:
a plurality of engagement sections extending substantially perpendicularly away from the plug outer surface, each engagement section engaging a portion of the segment seal main body.

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20. The valve assembly of Claim 19, wherein:
the engagement sections form a recess; and
at least a portion of the segment seal main body is disposed within the recess.

IX. EVIDENCE APPENDIX

No evidence pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132 has been entered by the Examiner or relied upon by Appellant in the instant appeal.

X. RELATED PROCEEDINGS APPENDIX

As there are no related appeals and interferences, there are also no decisions rendered by a court or the Board of Patent Appeals and Interferences that are related to the instant appeal.